

### **REMARKS**

Applicant(s) have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of June 5, 2003.

All of the Examiner's objections and rejections are traversed.

Reexamination and reconsideration are respectfully requested.

### **The Office Action**

**Claims 1-6, 8, 9 and 11-26** were presented for examination.

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**Claims 1-6, 8, 9, 11-17, 19-26, and 29** are now in the application.

**Claim 3** was objected to because of the informalities.

**Claims 3 and 24** stand rejected under 35 U.S.C. §112, second paragraph.

**Claims 1-6, 8, 11, 16, 17, 19, 20, 22 and 26** stand rejected under 35 U.S.C. §102(b) as being anticipated by Kitamura et al. (U.S. Patent 5,142,381).

**Claims 9, 12 and 13** stand rejected under section 103(a) as being unpatentable over Kitamura et al. (U.S. Patent 5,142,381) in view of Yamazaki et al. (U.S. Patent 4,812,415).

**Claims 14 and 15** stand rejected under section 103(a) as being unpatentable over Kitamura et al. (U.S. Patent 5,142,381) in view of Sekiguchi et al. (U.S. Patent 6,084,650).

**Claims 21 and 25** stand rejected under section 103(a) as being unpatentable over Kitamura et al. (U.S. Patent 5,142,381) in view of Hammond et al. (U.S. Patent 5,859,658).

**Claims 23 and 24** stand rejected under section 103(a) as being unpatentable over Kitamura et al. (U.S. Patent 5,142,381) in view of Rajeswaran et al. (U.S. Patent 5,917,534).

**Claim 18** has been cancelled.

**Claims 1, 3, 9, 12, 17, 19-21, and 26** have been amended.

**Claim 29** has been added.

### **Amendments to the Specification**

Specification has been amended to correct minor typographical mistakes. The amendments to the specification do not represent any new matter.

### **The Non-Art Rejections**

Objection of **claim 3** because of informalities has been alleviated by the amendments. It is respectfully requested that the objection of claim 3 be withdrawn.

Rejection of **claim 3** under section 112, second paragraph has been alleviated by the appropriate amendments. It is respectfully requested that this ground for rejection of claim 3 be withdrawn.

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**Claim 24** stands rejected under 35 U.S.C. §112, second paragraph. It was alleged in the Office Action that the term "high" is a relative term, and renders the claim indefinite.

Applicant respectfully traverses. With attention to the present patent application at page 19, third full paragraph states that:

The actual control of printbar **10** during printing operation is a more critical step due to a higher speed of signals in high-speed printing (e.g. 673 Mhz when two drivers are employed).

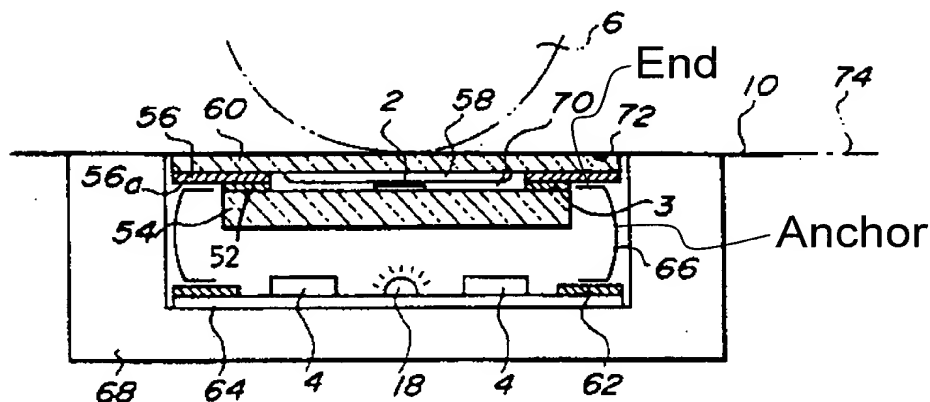
It is to be appreciated that the present invention is used in high-speed printing mechanisms, which are capable of supplying data stream at very high rates. Being exemplary only, in the above example, in which two drivers are employed, a high rate of 673 Mhz is employed. This, therefore, is exemplary of the high frequency bit stream supplied to the driver chip.

As such, the claim 24 is definite and there is support for it in the specification. Applicant respectfully requests that this ground for rejection of claim 24 be withdrawn.

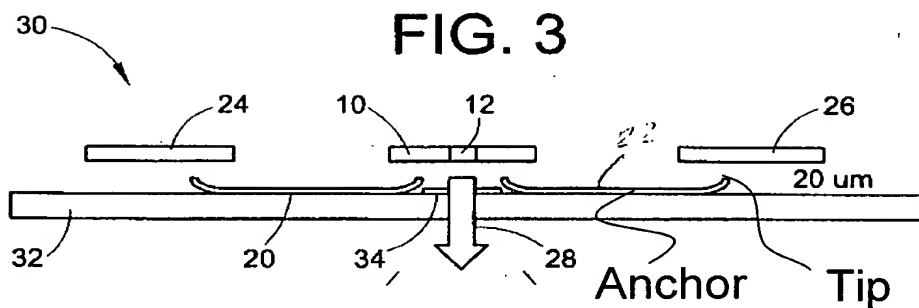
**Claims 1-6, 8, 9, 11-16 are in condition for allowance:**

**Claim 1** calls for among other limitations: a spring interconnect formed on the substrate, the spring interconnect including an anchor portion fixed to the substrate, and a free portion spaced from the substrate, the free portion including a tip separated from the substrate by an air gap. Initially, Applicant respectfully traverses Examiner's interpretation of Kitamura. The Examiner interprets Kitamura as having the anchor portion fixed to the substrate and a free portion spaced from the substrate. Applicant directs Examiner's attention to the Merriam Webster's Collegiate Dictionary, 9<sup>th</sup> edition, interpreting anchor as "a reliable or principal support." With respect to this interpretation, Kitamura's interconnect 66 has a principal or anchor portion and two end portions. A first end portion is fixed to the substrate 60, and a second end portion is fixed to the printing circuit board 62. Kitamura's anchor portion is free and not fixed to any other components. Therefore, Kitamura discloses the interconnect that has a free anchor portion and two end portions that are attached to the substrates as shown below in Kitamura's Figure 4.

**FIG. 4**



Claim 1 discloses an interconnect that has an anchor portion fixed to the substrate and a free portion with a tip that is separated from the substrate as shown below in Applicant's FIGURE 3. Once two figures are compared, it is apparent that Applicant's structure is distinguishable over Kitamura.



In addition, Kitamura's interconnect is clearly not formed on the substrate. None of the interconnect's surfaces touch the substrate, as illustrated in Figure 4. Thus, the interconnect and sensor are not integrated on the substrate as claimed in claim 1. For the reasons stated, it is respectfully submitted that claim 1 and claims 2-6, 8, 9, and 11-16 dependent on claim 1 distinguish patentably over Kitamura.

With attention to claim 8, in addition to its relationship on claim 1, claim 8 recites "the sensor and the spring interconnect are comprised of materials which allow for integration of the spring interconnect and the sensor on the single substrate during a manufacturing process, wherein at least one of the materials for the spring interconnect and the sensor is the same." This limitation is clearly distinguishable over Kitamura whose interconnect is not even touching the substrate as seen in Figure 4; and, therefore, is not formed on the substrate from the same material as the sensor during the manufacturing process as claimed in claim 8. Neither of the references discloses or suggests such a structure. It is therefore respectfully submitted that claim 8 distinguishes patentably and unobviously over Kitamura and other references.

With attention to claim 9, in addition to its relationship on claim 1, claim 9 has been amended to call for first and second vias, in which metal layers are deposited providing contacts to the first and second transparent/conductive layers.

Yamasaki discloses a metal contact 5 provided on the aluminum layer 24. Neither Kitamura, nor Yamasaki, singularly or in combination, discloses or suggests providing vias to the first and second transparent/conductive layers, which are filled with metal to provide contacts as claimed in claim 9. It is therefore respectfully submitted that claim 9 distinguishes patentably and unobviously over Kitamura and Yamasaki.

Turning now to claim 12, in addition to its relationship on claim 1, claim 12 has been amended to call for an absorption layer, located between the second transparent/conductive layer and the passivation/release layer. Yamasaki discloses a sensor in which the active layer (3) serves as the absorption layer for blocking ultraviolet light used in the sensor's fabrication process. (Col. 3, lines 44-45). The layer (3) is located between first and second conductive/transparent layers (2, 23). Therefore, Yamasaki does not disclose or suggest having a separate absorption layer located between the second transparent/conductive layer and the passivation/release layer as claimed in claim 12. Moreover, Yamasaki does not disclose or suggest protecting the active layer from an unwanted visible light as claimed in claim 12. Neither Kitamura nor Yamasaki, taken singularly or in combination, discloses or suggests a sensor having an absorption layer in addition to an active layer to block the unwanted visible light from being detected by the active layer as claimed in claim 12. It is therefore respectfully submitted that claim 12 distinguishes patentably and unobviously over Kitamura and Yamasaki.

**Claims 17, and 19-21 in condition for allowance:**

**Claim 17** has been amended to call for a light source including a laser device which includes a plurality of lasers. Kitamura discloses a single light source. Hammond discloses a printbar having a plurality of LEDs. Neither Kitamura, nor Hammond, taken singularly or in combination, discloses or suggests a hybrid device including a plurality of lasers. It is therefore respectfully submitted that claim

17 and claims 19-21 dependent on claim 17 distinguish patentably and unobviously over Kitamura and Hammond.

**Claims 22-25 are in condition for allowance:**

**Claim 22** calls for among other limitations: a sensor element integrated on a substrate with a plurality of spring interconnects, being in physical contact with a portion of the light source and a portion of the driver chip forming a communication path between the light source and chip. As it was discussed in connection with claim 1, Kitamura's interconnect is not formed on the substrate. Kitamura discloses a light (18) and a driver chip (4) which both are disposed on the same printed circuit board (64). Communication path between the light and the driver chip is provided by the printed circuit board (64). Interconnect (66) provides a communication path between the sensor (2) and the printed circuit board (64) and not between the chip and the light. In summary, Kitamura does not disclose or suggest a spring interconnect formed on the substrate along with the sensor, wherein the spring interconnect is in the physical contact with a chip and a light, forming a communication path between the chip and the light as disclosed in claim 22. It is therefore respectfully submitted that claim 22 and claims 23-25 dependent on claim 22 distinguish patentably and unobviously over Kitamura.

**Claim 26 is in condition for allowance:**

**Claim 26** calls for the sensor including a first transparent/conductive layer, an active layer, a second transparent/conductive layer located on top of the active layer, a passivation/release layer, and an absorption layer, located between the second transparent/conductive layer and the passivation/release layer to block an unwanted visible light. Kitamura does not disclose or suggest a sensor having multiple layers. Yamasaki discloses a sensor in which the active layer (3) serves as the absorption layer for blocking ultraviolet light used in the sensor's fabrication process. (Col. 3, lines 44-45). The layer (3) is located between first and second conductive/transparent layers (2, 23). Yamasaki does not disclose or suggest a separate absorption layer disposed between the second transparent/conductive

layer and the passivation/release layer and blocking unwanted visible light. It is therefore respectfully submitted that claim 26 distinguishes patentably and unobviously over Kitamura and Yamasaki.

**Claim 29** has been added to claim certain aspects of Applicant's concepts. As it was clarified with connection to claim 1, Kitamura does not disclose or suggest an anchor portion of the interconnect that is fixed to the substrate. Therefore, claim 29 is patentably distinguishable over Kitamura.

### CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-6, 8, 9, 11-17, 19-26, and 29) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

No additional fee is believed to be required for this Amendment AA. However, the undersigned attorney of record hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Deposit Account No. 24-0037.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call applicant's representative, Mark Svat, at Telephone Number (216) 861-5582.

Respectfully submitted,

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